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PATENT

APPARATUS AND METHOD FOR PHOTOVOLTAIC
ENERGY PRODUCTION BASED ON INTERNAL CHARGE
EMISSION IN A SOLID-STATE HETEROSTRUCTURE

ABSTRACT

An apparatus and method for solar energy production comprises a multi-layer solid-state structure including a photosensitive layer, a thin conductor, a charge separation layer, and a back ohmic conductor, wherein light absorption occurs in a photosensitive layer and the charge carriers produced thereby are transported through the thin conductor through the adjacent potential energy barrier. The open circuit voltage of the solar cell can be manipulated by choosing from among a wide selection of materials making up the thin conductor, the charge separation layer, and the back ohmic layer.